Lyme disease occurs in three distinct clinical stages. Stage I is characterized by a rash, erythema chronicum migrans, which develops 2 to 30 days after inoculation by the tick bite. This rash occurs in 60% of patients and is often accompanied by profound fatigue, low-grade fever, chills, stiff neck, arthralgias, and myalgias. The second stage of disease occurs in only 15% of patients and includes neurologic and cardiac symptoms. Stage III occurs weeks to years after the initial infection and consists of polyarthritis that is clinically similar to rheumatoid arthritis. This arthritis will develop in about 60% of patients who have not received appropriate treatment of stage I or II.

The treatment of choice for Lyme disease is to administer tetracycline, 250 mg four times a day for ten days. Children younger than 8 years may be given penicillin, 50 mg per kg body weight per day, or erythromycin, 30 mg per kg per day for ten days. The symptoms may worsen immediately following the initiation of antibiotic therapy, indicating the Jarisch-Herxheimer reaction. Early recognition and treatment can substantially reduce the incidence and severity of the arthritis associated with stage III disease.

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Prenatal Evaluation for Hepatitis B Surface Antigen

EACH YEAR 3,500 newborns become hepatitis B virus carriers following the perinatal transmission of hepatitis B virus infection. Hepatitis B is easily transmitted during pregnancy, and most infected newborns (85% to 90%) will become long-term carriers.

At-risk newborns treated early have an 85% to 95% reduction in the carrier rate. Unfortunately, risk factor screening identifies only 35% to 65% of hepatitis B virus carriers, and risk factors are not consistently applied in practice. In response to these difficulties and in light of the substantial morbidity of hepatitis B in newborns, the Immunization Practices Advisory Committee (ACIP) of the Centers for Disease Control now recommends that all prenatal patients be screened for hepatitis B virus infectivity.

The ACIP recommends that testing for the hepatitis B surface antigen be added to the laboratory tests done on the first prenatal visit. Women testing negative should be rescreened if involved in high-risk behaviors during pregnancy, such as intravenous drug use. Women testing positive should be considered carriers and their newborns treated.

Once the hepatitis B surface antigen is identified in a patient, the following actions should occur:

- If there is evidence of acute or chronic liver disease, additional therapy may be indicated for the woman.
- Household contacts and sexual contacts need to be screened, and, if susceptible, prophylactic treatment (hepatitis B vaccine) needs to be instituted.
- The newborn infant will need to be treated as follows: hepatitis B immune globulin, 0.5 ml, is given intramuscularly when the infant is stable (within 12 hours, if at all possible); hepatitis B vaccine, 0.5 ml, is given intramuscularly at a separate site at the same time as the hepatitis B immune globulin, and repeat doses are given at 1 and 6 months of age; the child should have hepatitis B surface antigen and antibody testing at 12 to 15 months of age to assure effectiveness of the treatment.

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Preventing Teenaged Addiction to Tobacco

TOBACCO ABUSE is the most important preventable cause of illness and death in our society. The highly addictive nature of tobacco was well documented by the most recent Surgeon General's report. Cessation programs are certainly worthwhile but have shown limited success in treating addiction. The primary prevention of tobacco abuse therefore seems to hold greater promise for controlling the tobacco pandemic.

Few people begin to smoke after reaching adulthood. In fact, 60% of all smokers start using tobacco by the age of 14 years, and 90% start by the age of 19. It is therefore logical to direct preventive efforts at children and adolescents.

Each year our children are bombarded with $2 billion worth of advertising that attempts to associate tobacco use with "coolness," sexiness, athletics, and the attainment of adulthood. In a highly successful effort to make chewing tobacco more attractive to children, one company markets little teabaglike packets of candy-flavored snuff. Once addicted, teenaged boys are likely to become lifelong consumers of tobacco products.

These Madison Avenue techniques cannot be effectively countered with scare tactics—a 14-year-old boy is seldom impressed by the fact that his smoking now may cause lung cancer when he is 60. On the other hand, humor and parodies of tobacco ads are apparently more effective in countering the promotion of tobacco. The goal is to "laugh the pushers out of town," while explaining the harmful effects of tobacco in terms to which children can relate: "Smoking gives you yellow teeth and bad breath and makes you *less* attractive to the opposite sex." "Smoking doesn't make you 'cool'—only 'nerds' smoke cigarettes or dip snuff." "Tobacco is a 'rip-off,' and money that kids waste on tobacco could be spent on clothes and records instead."

Physicians can cooperate with local school districts to develop tobacco education curricula for fifth- to seventh-grade students. A model program is available from DOC (Doctors Ought to Care, 1423 Harper St, Augusta, GA 30912), with lesson plans for several teacher-conducted sessions, followed by a slide presentation by a physician. The program culminates in a poster contest, with the winning student's poster displayed as a billboard in a prominent location in the community.

Tobacco companies spend millions of dollars to sponsor sporting events, circumventing the regulations that prohibit the explicit advertising of tobacco products on television. Through the sponsorship of sports, they attempt to establish an association between tobacco and athletic prowess and to buy an aura of respectability. Although the industry denies it,

much of this sports-related tobacco advertising appears to be directed at youth. Some communities have responded with parodies such as the "Emphysema Slims Tennis Tournament" and the "Dead Man Chew Softball Tournament." Others have used paid counteradvertising on television, radio, billboards, and bus benches to tell the truth about tobacco and to point out the insidious techniques used in its promotion.

These new approaches for preventing tobacco abuse by children have been pioneered by DOC. The American Medical Association, the American Academy of Family Physicians, and the American Cancer Society are all beginning to adopt these new methods, while continuing their efforts to encourage smoking cessation.

Through counteradvertising and tobacco education programs on the local and national levels, it may be possible to reduce the number of new smokers and thereby decrease the impact of the tobacco-related diseases that presently kill 1,000 Americans every day.

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Diarrhea in Children

FOR MANY CLINICIANS, the treatment of diarrhea is straightforward: the patient is not given anything orally while the intravenous (IV) administration of fluids is started, then the patient is given clear liquids for 24 to 48 hours, followed by a BRAT—bananas, rice, applesauce, toast—diet. Recent studies, primarily in third-world populations, have shown that this is not the optimal therapy.

Perhaps the biggest change has been in IV fluids therapy, which is now recognized as rarely necessary. Instead, oral rehydration solutions—World Health Organization Oral Rehydration Solution (WHO ORS), Pedialyte, Lytren—are available and effective in replacing lost fluids. It should be emphasized that many "clear liquids" such as soft drinks and popsicles are not ideal therapies: they are low in sodium and potassium, key electrolytes in this disease state, and high in carbohydrates, a fact that may prolong the diarrhea. If soft drinks or fruit juices are used, they should be diluted one part beverage to two parts water because they are hyperosmolar and may draw water into the lumen. In addition, commercially prepared soup (high in salt content) and tap water (no electrolytes) should not be a major component of the therapy. For these reasons, many clear liquids should be avoided, except in limited quantities or in mild cases.

Because continued breast-feeding is beneficial, there is a growing thought that the disease state responds better to the additional nutrition than to starvation. In underdeveloped countries where no IV fluids are available and the WHO ORS formula is widely used, research has shown that replacing the glucose in the oral rehydration solution with rice powder or protein actually decreases the recovery time. Recent studies in England and the United States have confirmed these findings. Thus, the trend is now to give oral clear liquids (as described above) in the first few hours of illness followed by early feeding of a carbohydrate-protein-electrolyte mixture while the patient still has diarrhea. This regimen is thought to be not only safe but preferred because it decreases morbidity and costs.

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Circumcision Reevaluated

DESPITE BEING THE MOST COMMON surgical procedure in the country, circumcision has been the center of tremendous and often intense debate for the past 40 years. So adamant have the two camps been that little consensus has been achieved. Thus, though the American Academy of Pediatrics is reevaluating its 18-year-old anticircumcision stance, it is unlikely the controversy will be resolved. Though there are currently no answers, family physicians should be updated on the debate in order to better inform parents and to assist in the needed research.

Central to the debate is the evaluation of health risks and benefits. Most health risks of remaining uncircumcised—balanitis, posthitis, penile cancer, phimosis, and foreskin trauma—are too insubstantial in frequency or morbidity to play a role in decision making. The recently discovered tenfold increase in urinary tract infections in uncircumcised persons has swayed many to favor the procedure, but the long-term effects of this increased risk are not known. In addition, the original belief that the procedure is "harmless" in most infants has come into question with the recent realization that neonates do feel pain and show pronounced physiologic and biochemical changes to this pain.

What role, then, does the family physician have? It is clear there is no consensus, and the field is evolving. To strongly adhere to one belief or the other is probably unwise. Until such time that the several questions regarding circumcision and the uncircumcised state are answered, supportive counseling of parents is the best plan.

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The Melanoma Epidemic

ALTHOUGH THE EPIDEMIC of disease mediated by the human immunodeficiency virus has rightfully taken much of our attention, primary care physicians must not forget that we are also in the midst of an epidemic of malignant melanoma. The incidence of malignant melanoma roughly tripled between 1950 and 1970 and has increased by 700% over the past 55 years. It is estimated that by the turn of the century malignant melanoma might well afflict 1% of the general American population.

It is extremely important that primary care physicians be trained to diagnose malignant melanoma in its early stages because prognosis is best correlated with the thickness of the lesion. The relationship of melanoma thickness to five-year survival is as follows: 0 to 0.85 mm, 99%; 0.86 to 1.69 mm, 94%; 1.70 to 3.59 mm, 81%; and 3.60 mm or larger, 49%.